

ABSTRACT

50. A method for installing a heat exchange pipe loop in a borehole, the method in at least certain aspects, including drilling a borehole with a sonic drill system having a head and casing connected thereto, a drill shoe on a lower end of the casing movable by the sonic drill head to drill the borehole, pumping fluid (e.g., water and drilling fluid) into the casing, out through a lower end of the casing, and up to earth surface in an annular space in the borehole so that drilled material flows to the earth surface, lowering a heat exchange pipe loop down into the casing, introducing grout into the casing around the heat exchange pipe loop, and extracting the casing from the borehole.